UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,413	05/16/2005	Kenneth Sundberg	PR/3-23156/A/RAI 56/PCT	4017

324 7590 07/02/2008
JoAnn Villamizar
Ciba Corporation/Patent Department
540 White Plains Road
P.O. Box 2005
Tarrytown, NY 10591

EXAMINER	
CORDRAY, DENNIS R	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
07/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,413	SUNDBERG ET AL.	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Declaration

Applicant's Declaration under 37 CFR 1.132, filed 4/7/2008, has been fully considered but is not persuasive.

The Declaration presents data showing Cobb sizing effects as a function of concentration for ASA sizing compositions comprising polymers and olefins in excess of the claimed lower limits, ASA sizing compositions comprising polymers in excess of the claimed lower limits and having no olefins, ASA sizing compositions comprising olefins in excess of the claimed lower limits and having no polymers, and 100% ASA sizing compositions comprising no polymers or olefins. In addition, ASA sizing compositions comprising various amounts of either polymers or olefins were compared. The data appear to show that the Cobb value decreases (improved sizing effect) with either decreasing olefin or decreasing residual polymer content. The data also appear to show that, with conventional ASA (containing both olefins and residual polymer, the polymer in excess of the claimed upper limit) or 100% ASA (distilled), the Cobb value decreases with increasing concentration of sizing agent. The results are not unexpected because either decreasing the amount of impurity or increasing the concentration increases the amount of ASA in the sizing composition and one of ordinary skill in the art would expect improved sizing effects with greater amounts of ASA, assuming the same pickup of the sizing composition on the paper. There are no surprising changes in the Cobb values in the vicinity of the claimed limits of polymeric

residues or olefins. The change in Cobb value with amount of impurity below, at and above the claimed limits appears to be reasonably consistent, except where the level of polymeric residue increases to greater than 10%, which is far above the claimed limit of 1%.

The Cobb vs. concentration data for sizing compositions having only olefin impurities or residual polymer impurities are puzzling because the Cobb values are much higher at a concentration of 1000 mg/L than for either higher or lower concentrations. The results appear inconsistent with the values obtained for the standard ASA, which has both kinds of impurity, and for the 100% ASA, both of which gave decreasing Cobb values with increasing concentration. Interestingly, a concentration of 1000 mg/L was chosen to conduct further testing. The apparent inconsistencies in the data at 1000 mg/L concentration were not discussed by the Applicant.

In the data presented, the amount of pickup of the sizing composition from test to test is unknown. Since the amount of pickup is unknown, and due to inconsistencies in the data as discussed above, there can be no predictability with respect to the concentration of sizing solutions used or with the amount of pickup on the paper.

In any case, the data fail to show surprising results with respect to the claimed limits of impurities and are not commensurate with the scope of the claims.

Applicant's explanation on p 5 that the examples in the Specification disclose wet end addition are convincing. The previously made comment is withdrawn.

Applicant's statement on p 6 that similar sizing trends would be expected with paper made from different pulps, papers having different weights, and with sizes applied in the wet end or by size press are convincing. The previously made comments are withdrawn. With regard to varying the amount of ASA (which can be done by varying the concentration, by varying the number of applications, or by varying the amount of impurities), the statement is not convincing due to the apparent non-predictability of the data as discussed above.

Applicant's explains that one skilled in the art tries to use inexpensive raw materials unless there is a known advantage in using more highly purified and thus more costly materials. The Examiner agrees that cost of materials vs. advantages are considerations. Removing unreacted anhydride, olefins and at least some other impurities from reacted ASA compositions by distillation is typically practiced as taught in Fakoukakis et al (col 1, line 20 to col 2, line 12), Hale et al (4958034, col 7, lines 30-41), and Shin et al (5021169, col 3, lines 34-53 and col 4, lines 14-27). It is also known that the polymeric residue typically remains with the ASA in the sizing composition (see Irwin et al, 3412111, col 3, lines 2-9; Shin et al, 5021169, col 4, lines 45-47) The adverse effects of residual polymer on paper sizing and the desirability of reducing the amount thereof are also known (see Shin et al, col 1, lines 10-50 and col 4, lines 45-49). Shin et al reviews some of attempts in the prior art to inhibit the formation of polymers in ASA. The problem of trying to reduce polymer content is well known in the art and has been addressed by many inventors, thus advantages are expected by those of ordinary skill n the art from lowering the polymer content. Fakoukakis et al offers a method of

making ASA that does not produce significant amounts of residual polymers and only requires the already practiced distillation step of removing unreacted materials (col 2, lines 13-44), thus provides a highly purified product without a costly step to remove the polymer residue. Given the desirability of minimizing the amount of polymers in the ASA as generally known in the art, why would it not have been obvious to one of ordinary skill in the art to use the highly purified ASA as taught by Fakoukakis et al, which does not require a costly step of removing polymers, to reduce the known adverse effects of residual polymers?

Response to Arguments

Applicant's arguments, see p 7, filed 4/7/2008, with respect to the rejection of Claim 10 as a product-by-process claim as anticipated by or, in the alternative, as obvious over Tansley et al have been fully considered and are persuasive. The data provided in the Declaration discussed above demonstrate that the paper made by the instant invention is different than that made by Tansley et al. The rejection has been withdrawn.

Most of Applicant's arguments reiterate the data and discussion provided in the Declaration, which have been discussed above.

With regard to Sonada, Applicant's believe that the referenced information recording material is a magnetic recording material. Applicant references U.S. Patent No. 5118565 as teaching use of ASA on a magnetic recording medium as support. The arguments of counsel cannot take the place of evidence in the record. In re Schulze,

346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness.").

ASA is used in many industrial applications unrelated to paper sizing, as disclosed by Sonada and Fakoukakis et al. Sonoda teaches that a mixture containing tar and high molecular weight polymer is used for regular sizing purposes, but a high purity product is required for information recording material (which the Examiner construes to encompass recording papers). Sonoda et al provides a motivation for one of ordinary skill in the art to seek the highest purity product obtainable for use in information recording material.

Fakoukakis teaches a simpler, more efficient and more economical process for producing high purity ASA.

Absent convincing evidence of unobvious advantages therefrom, one of ordinary skill in the art would have known of the above disclosures and of the desire generally known in the art to reduce the amount of residual polymer in ASA, and would have been motivated to use the ASA of Fakoukakis as an economical and very high purity product.

Regarding the failure of Sonada to disclose the claimed purity, the reference was used to supply motivation to obtain a high purity ASA. Fakoukakis teaches a method for producing high purity ASA that does not require a costly step of removing polymers.

The rejections over Tansley et al in view of others are maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2 and 4-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tansley et al in view of Fakoukakis et al (4956478) and further in view of Frohlich et al (5969011) and Sonoda et al (JP 62106091 A, translation used for reference).

Claims 1-2, 4-12 and 20: Tansley et al discloses a sized liquid packaging paper or board, wherein the sizing agent comprising alkenyl succinic anhydride, or ASA is added to the aqueous pulp slurry (Abstract; col 4, lines 23-26; col 5, lines 55-60). The board is coated on both sides with polyethylene (barrier coating of a food grade material) (col 1, lines 12-18; col 3, line 25). Tansley et al discloses a method for producing a carton comprising forming a sized paper or board, treating with hot hydrogen peroxide (sterilizing), then forming a packaging unit (carton) from the board (col 3, lines 3-28). The sizing agent is provided as an aqueous dispersion (col 3, lines 19 and 20).

Tansley et al does not disclose the polymeric residues or olefin content of the ASA.

Fakoukakis et al discloses a method for making a nearly pure ASA (Abstract; col 4, lines 23-26). While the polymeric residues and olefin content of the nearly pure ASA are not disclosed, examples are given of a product comprising about 99% ASA (col 5, lines 33-36; col 6, lines 1-3), thus having a maximum combined content of polymer residues and olefins of about one percent. Fakoukakis et al also discloses that the

alkenyl succinic anhydrides have substantially no polymeric residue contamination (col 2, lines 13-20; claim 1). Substantially no polymeric residue is interpreted as a level low enough not to have any impact on the structure or performance of the product. The alkenyl succinic anhydrides of Fakoukakis et al are thus substantially the same as those of the instant invention. Fakoukakis discloses that the method is a simpler, more efficient and more economical process for producing nearly pure ASA.

Fakoukakis et al does not recite the use of the ASA as a sizing agent. However, ASA is a well known cellulose reactive size used in papermaking, as taught by Frohlich et al (col 1, lines 10-16).

Sonoda et al teaches the use of ASA for multiple purposes, such as a sizing agent, resin former, plasticizer, lubricant additive and rust inhibitor, which include many of the uses recited by Fakoukakis et al but with the inclusion of a sizing agent (p 2, lines 3-4). Sonoda et al also teaches that the usual methods of making ASA result in byproducts of a tar substance and a high molecular weight polymer, which result in insufficient quality of the product. Sonoda et al further teaches that a high-purity product is required for an information recording material (which the Examiner construes as meaning a paper) and that numerous proposals have been made for obtaining high purity product with fewer byproducts (p 2, last 3 pars).

The art of Tansley et al, Fakoukakis et al, Frohlich et al, Sonoda et al and the instant invention are analogous as pertaining to the use of ASA. Tansley et al teaches the basic use of ASA in a paper. Fakoukakis et al teaches a method for producing high-purity ASA with the claimed amount of byproducts. One of ordinary skill in the art would

have found a product containing 99% ASA and 0.5% or less of polymer residues and/or olefins to be an obvious embodiment over the disclosure of Fakoukakis et al. Frohlich teaches that ASA is a well known sizing agent used in papermaking. Sonoda et al teaches that it was well known in the art (numerous proposals made) to seek a high purity ASA to be used in information recording paper. It would have been obvious to one of ordinary skill in the art to use the claimed ASA in the paper of Tansley et al or in any paper in view of Fakoukakis et al and further in view of Frohlich et al and Sonoda et al as a well known more economical sizing agent having a low level of unwanted by-products.

Claim 13: Fakoukakis et al teaches that the products can be used in many instances without further purification (col 2,lines 13-20; col 3, lines 20-23), thus implicitly discloses that further purification is possible. With the motivation, as taught by Sonoda et al, to obtain a high-purity ASA sizing agent, it would have been obvious to one of ordinary skill in the art to further purify the product of Fakoukakis et al by removing as much of the polymeric residues as possible.

Claims 14-16: The sized paper of Tansley et al in view of Fakoukakis et al and further in view of Frohlich et al and Sonoda et al has substantially the same structure as the instant invention, as claimed. The sizing agent will have the claimed properties of color and rate of hydrolysis because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure

recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 17-19: Tansley et al discloses that the preparation of stable dispersions comprising the cellulose reactive size includes conventional stabilizers and dispersing agents falls within the competence of those skilled in the art. The preferred stabilizer is a cationic starch (col 4,lines 16-22). Frohlich et al teaches that paper sizes based on cellulose reactive sizing agents (ASA and AKD) are generally provided in the form of dispersions comprising a high molecular weight cationic polymer, cationic starch, polyamine or polyamideamine (col 1, lines 1-25). Applicant also teaches that cationic starch, cationic polyacrylamide and other cationic polymers are stabilizers well known in the art for sizing compositions using ASA (p 5, 3rd par). It would thus have been obvious to one of ordinary skill in the art to use the conventional stabilizers with high purity ASA to make a paper sizing dispersion and to have a reasonable expectation of success.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791